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Agenda Item: 8-3A
Meeting Dates: April 7 and 8, 2004

CONSIDERATION OF A RESOLUTION APPOINTING DR. JOHNNIE N. MOORE AS LEAD SCIENTIST FOR THE CALFED BAY-DELTA PROGRAM

Summary: This resolution would appoint Dr. Johnnie N. Moore as Lead Scientist for the CALFED Bay-Delta Program. The staff report below summarizes the Lead Scientist responsibilities and the selection process utilized to bring a nomination forward to the Authority.

Recommended Action: Staff recommends that the Authority adopt the attached Resolution 04-04-07.

Background

The CALFED Programmatic Record of Decision (ROD) calls for a Lead Scientist to develop, direct, and implement the programmatic goals of the CALFED Science Program and develop priorities with CALFED program managers and implementing agencies pursuant to these goals. The position responsibilities of Lead Scientist are attached to this staff report (Attachment 1). California Bay-Delta Authority Act (Act) expressly requires the Authority, with the advice of the Director, to appoint a Lead Scientist, who shall report to the Authority. Under the Act, Dr. Samuel N. Luoma, a USGS employee who had been serving as interim Lead Scientist since 2000, was formally appointed by the Authority in August 2003. Dr. Luoma has left the CALFED Program and returned to his full-time research position.

In August 2003, the Authority also appointed the Independent Science Board (ISB) and approved a broad oversight charge for that body which includes advice on the selection of a Lead Scientist (Resolution 3-08-03). To participate in the recruitment and selection of a new Lead Scientist, the ISB appointed three members: Dr. Jeffrey Mount (University of California, Davis); Dr. Denise Reed (University of New Orleans); and Dr. Robert Twiss (University of California, Berkeley) to work with the Director to oversee the search and nomination process for the new Lead Scientist. A Nomination Committee was convened that included the three ISB members, the Director, and State and Federal agency representatives, including Dr. Roger Fujii (U.S. Geological Survey), Dr. Andrea Alpine (U.S. Geological Survey), Dave Harlow (U.S. Fish and Wildlife), Susan Ramos (U.S. Bureau of Reclamation), Tim Ramirez (California Bay-Delta

Authority), and Dr. Diana Jacobs (California Department of Fish and Game). Dr. Twiss was selected as the chair of the Nomination Committee.

The Nomination Committee reached unanimous agreement to put forward the name of candidate Dr. Johnnie N. Moore for the position of Lead Scientist.

Recruitment and Review Process: The three members of the ISB, in consultation with Dr. Luoma and CALFED Science Program staff, developed the job announcement and position description, including the minimum qualifications and professional experience necessary for an individual to carry out the responsibilities of Lead Scientist at a GS-15 level. The position was advertised nationally (Attachment 2) and 29 applicants responded. All applications were reviewed by Dr. Luoma, and the Deputy Director for Science to assess their experience based on the minimum qualifications. Seven of 29 applicants met minimum qualifications. The Nomination Committee met with Dr. Luoma to discuss these seven individuals, and invited comments from the ISB regarding the applicants. The Nomination Committee determined that four of seven applicants were regarded as possessing qualifications above and beyond the minimum level. The Nomination Committee designed an interview process, formulated questions, and made preparations to interview the four candidates. Prior to the interview process, reference letters and follow up phone calls were completed for the four applicants.

Interview Process: Applicants were interviewed by the Nomination Committee during January 2004. Each applicant was also asked to give a scientific presentation at a public meeting on a topic of their own choosing. In addition, each applicant had an opportunity to meet with CALFED Science Program staff and a small number of Bay-Delta Public Advisory Committee members. This interview process followed approved Federal guidelines for personnel interviews.

Upon completion of the interviews and visits by all four applicants, the Nomination Committee met on the evening of January 27, 2004. All four applicants were considered in light of pre-stated position criteria (Attachment 3) and the Nomination Committee members' exposure to the candidates during their visits. The committee reached unanimous agreement on its recommendation of the candidate best suited to meet the Program's needs: Dr. Johnnie N. Moore. The Nomination Committee's memo describing the rationale for its decision is attached (Attachment 4).

At the meeting of the ISB on January 28, 2004, Nomination Committee Chair, Dr. Twiss presented a summary of the selection process. To give ISB members further time to review background materials the item was tabled to permit consideration and informal discussion throughout the day. At the close of business, the ISB as a whole adopted a formal motion to recommend candidate Moore; the motion passing unanimously.

This recommendation is supported by Director Patrick Wright, and is now forwarded to the Authority for its consideration and action.

Nominee: Dr. Moore is presently a Professor of Geology at the University of Montana where he has been on the faculty since 1977. He supervises the Environmental Geochemistry Laboratory (a central laboratory for inorganic analyses), and directs graduate students working on environmental geochemistry theses/dissertations. Dr. Moore presently teaches courses in Environmental Geology and Global Change (Junior), and Environmental Geochemistry (Senior and Graduate), River Restoration (Graduate) and Environmental Analysis (Graduate). Much of his teaching is field/lab oriented revolving around direct student involvement in solving and examining local/regional/global environmental problems. His research examines the cycling of metals and metalloids in aquatic systems—specifically the transport and fate of metals and metalloids in wetland, river and reservoir systems. He has authored about fifty refereed journal publications, many reports, two books, and many abstracts/papers presented at professional meetings. Dr. Moore's other professional achievements include: Appointment as inorganic geochemistry symposia leader of the Geochemistry Division, American Chemical Society (1992-3); expert consultant for Mountain Water Co., Missoula MT; expert consultant for USEPA/USDoJ Superfund litigation, and the State of Montana Clark Fork River Damage Assessment (1990-7); expert witness for American Home Ins. Co. (1993-4), and oversight of specific USEPA Superfund sites in Montana and USDoE Subsurface Science Program experiments at Hanford; chair of special sessions for Amer. Geophys. Union and Geol. Soc. Amer. meetings; University of Montana Distinguished Scholar for 1995; member of the Executive Committee of the Faculty Senate and member of the Academic Standards and Regulations Committee; member of the Board of Directors of Citizens for Science in Public Participation; member of the Editorial Board of *Advances in Environmental Research*, Pergamon Press.

Dr. Moore's full Curriculum Vitae is attached (Attachment 5).

Fiscal Information

Not applicable

List of Attachments

Attachment 1 - Position Responsibilities of Lead Scientist
Attachment 2 - Lead Scientist Position Announcement
Attachment 3 - Lead Scientist Selection Criteria
Attachment 4 - Nomination Committee Memo to Director Wright
Attachment 5 - Curriculum Vitae for Dr. Johnnie N. Moore
Resolution 04-04-07

Contact

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Deputy Director for Science

Agenda Item 8-3A
Attachment 1
Position Responsibilities of Lead Scientist

The Lead Scientist is responsible for integrating world-class science across all parts of the CLAFED Program called for in the Record of Decision and the Bay-Delta Authority Act (Act). The Act specifies that any nominee for Lead Scientist must have achieved three basic requirements. The individual must have (1) undertaken substantial scientific research work in any field related to one or more of the Program elements, (2) managed environmental issues or advised high-level managers in methods for promoting science-based decision making in the areas of water management and ecosystem restoration, and (3) obtained a record of publication in the peer reviewed scientific literature. The Lead Scientist must perform specific responsibilities under the Act:

- Provide authoritative and unbiased reviews of the state of scientific knowledge on specific issues relevant to management and decision making;
- Apply independent peer review to provide high technical and scientific quality to program actions;
- Apply the principles of adaptive management, monitoring, and investigations to reduce uncertainties;
- Develop and implement performance measures and processes to evaluate program actions;
- Ensure the full investigation of the effects of each program element on other program elements; and
- Advise the Authority on strategies and budgets appropriate to address critical scientific information needed to test, refine, and improve understandings of the Bay-Delta and its watersheds relevant to management and decision making.

Carrying out these responsibilities requires the Lead Scientist to perform a broad range of tasks, that include:

- Identifying information needs by obtaining stakeholder, agency and scientific input and lead constructive and open discussions via coordination of appropriate mechanisms such as workshops, symposia, white papers, and review panels;
- Enlisting the intellectual resources relative to the state of science critical CALFED Program issues by continually seeking advice from, and communicating with, agency, university, non-governmental organization, and private sector scientists;
- Developing the charge for expert advisory panels and standing boards; and work with scientific experts to assure their success in appropriately advising the CALFED Program and promoting scientific discussions;
- Developing written proposals that describe and solicit new science projects that meet information needs; and
- Communicating the status of the science, vision, and scientific knowledge to the Authority, Federal and State agencies, and stakeholders.

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Attachment 2
Lead Scientist Position Announcement

The California Bay-Delta Authority has responsibility for overseeing the implementation of the CALFED Bay-Delta Program. The CALFED Program is an unprecedented, multi-billion dollar, 50-year cooperative effort of more than 20 State and Federal agencies working to improve the quality and reliability of California's water supplies and revive the San Francisco Bay-Delta ecosystem. (http://calwater.ca.gov)

The CALFED agencies are committed to developing the best scientific information possible to guide decisions and evaluate actions and program performance. Integrating world-class science and peer review into every aspect of the CALFED Program is the goal of the Science Program. We have an opening for an established, experienced research scientist to direct the efforts of the Science Program as the CALFED Lead Scientist.

This critical position will be filled by an individual who can provide leadership and articulation of science issues to the policy community. The Lead Scientist coordinates extensively with senior policy officials in State and Federal government agencies and is expected to provide broad oversight and coordination of scientific activities conducted under the auspices of CALFED. This individual will identify, refine and implement the science agenda for CALFED. This includes new science needs, a vision for integrating science into management, and applying that vision and articulating the state of knowledge on a wide range of issues specific to California water policy. An important part of the job includes developing, leading and sustaining dialogues and public discussions of technical issues among leading technical experts in the stakeholder community, managers in implementing agencies, and researchers; and developing, perpetuating and leading implementation of a rigorous, balanced peer review system. The Lead Scientist also serves as the primary contact between the research community and CALFED.

Qualifications: PhD or equivalent experience that includes a natural science background or extensive experience working with natural scientists. Qualifications should be the equivalent of those for a Federal GS-15 or higher. This position requires all or most of the following: evidence of stature in the broad scientific community (invited contributions to workshops, conferences or panels; evidence of scientific leadership; awards, membership, or important committee assignments in prestigious organizations); experience advising top managers and policymakers and promoting constructive integration of interdisciplinary science in management programs, especially in arenas relevant to water management and/or ecosystem restoration; a strong record of publication in peer-reviewed scientific literature and other evidence of extensive and/or intensive working knowledge in an area of expertise relevant to the CALFED Program; evidence of abilities to work and communicate well with people from different professional backgrounds; evidence of ability to weigh issues in a balanced manner when in an advisory capacity; and evidence of ability to work and think across disciplines; experience in working with and advising on complex issues that integrate multiple disciplines.

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Attachment 3
Lead Scientist Position Criteria

1. Scientific Credentials. We are looking for a candidate with a broad base of scientific knowledge and experience working in multidisciplinary teams, and with a deep appreciation for environmental processes and complex systems. This candidate should have the stature that will bring the respect and buy-in from the scientific community. Ideally, the candidate would have the standing of a full professor or equivalent scientific stature (i.e., Federal GS-15 research grade level) and be a "big picture thinker."

2. Professional and Leadership Experience. The ideal candidate would have demonstrated an interest and ability to lead with experiences such as chairing independent review panels or peer review panels, developing new institutional structures that bring people from different fields together, or serving in a senior editorial capacity for a journal. It is also very important that the candidate have a deep and abiding interest in public issues and making a broader contribution to society than just within the scientific realm. The Lead Scientist must be able to work constructively with agencies, stakeholders, and policy makers.

3. Personal Characteristics. A significant part of this position involves facilitating discussions about complex technical issues that are the focal point for significant and deep political debates. We are seeking an individual who has a personal approach that can bring people to work together rather than drive them apart, is well-regarded as a good people managers, and has a seasoned view of administrative issues and would not get bogged down in trying to resolve small issues.

Position Responsibilities

Generally speaking, the Lead Scientist is responsible for integrating world-class science across all parts of the CALFED Bay-Delta Program. The Lead Scientist has several specific responsibilities under the State legislation and an agreement (the "ROD") signed by all 23 State and Federal agencies in the CALFED Program. These responsibilities include:

- Advising the California Bay-Delta Authority (the Program's oversight body) on strategies and budgets appropriate to address critical scientific information needed to test, refine, and improve understandings of the Bay-Delta and its watersheds relevant to management and decision making;
- Ensure independent peer review is employed extensively and prudently to ensure the technical and scientific quality of program studies, planning, implementation, and performance evaluation, including practices that for the scientific bases for program decision making;
- Develop and implement performance measures and processes to evaluate program actions;

- Ensuring the scientific application of adaptive management, monitoring, and investigations to reduce uncertainties and the full investigation of the effects of each program element on other program elements; and
- Provide authoritative and unbiased reviews of the state of scientific knowledge on specific issues relevant to management and decision making.

Carrying out these responsibilities requires the Lead Scientist to perform a broad range of tasks, including keeping abreast of the state of sciences, identifying knowledge needs by obtaining stakeholder, agency and scientific input, as well as keeping abreast of scientific aspects of critical CALFED Program issues, developing written documents that describe and solicit new science projects that meet knowledge needs; leading constructive and transparent discussions of key scientific aspects of CALFED Program issues; developing the charge for expert advisory panels and standing boards, working with those experts to assure their success in appropriately advising the CALFED Program and promoting scientific discussions; and leading the development and implementation of the appropriate mechanisms (workshops, symposia, white papers, review panels) to clarify the state of knowledge with regard to critical CALFED Program issues as they develop.

It is critical that the Lead Scientist communicate the status of the science, vision, and scientific knowledge to the Authority staff, Federal and State agencies, and stakeholders. The Lead Scientist must also enlist the intellectual resources necessary to implement an authoritative science effort by continually seeking advice from, and communicating with, relevant agency, university, NGO, and private sector scientists and scientific institutions.

The State legislation specifies that any nominee for Lead Scientist must meet three basic requirements: the individual must have undertaken substantial scientific research work in any field related to one or more of the Program elements, have experience managing environmental issues or advising high-level managers in methods for promoting science-based decision making in the areas of water management and ecosystem restoration, and has a record of publication in the peer reviewed scientific literature.

Agenda Item: 8-3A, Attachment 4
Meeting Dates: April 7 and 8, 2004

M e m o r a n d u m

Date: March 4, 2004

To: Patrick Wright, Director, California Bay-Delta Authority

From: Drs. Robert Twiss, Denise Reed, and Jeff Mount, ISB members of the Lead Scientist Nomination Committee

Subject: Recommendation of Dr. Johnnie Moore as Lead Scientist

As required by the Independent Science Board (ISB) Charter (approved August 2003), the purpose of this memo is to forward the ISB recommendation that Dr. Johnnie Moore, Ph.D. be selected for the position of Lead Scientist. This recommendation is based upon the formal unanimous votes of both the Nomination Committee and the full Independent Science Board.

The nomination process is described in the Authority staff report.

Finalists were evaluated according to the following criteria: scientific stature, scientific leadership, organizational skills, interpersonal skills, and commitment to the role of Lead Scientist.

Dr. Johnnie Moore impressed all members of the Nomination Committee and the ISB with his experience and skills in all four criteria.

Scientific stature: He exhibited clear ability to be a strong voice for science, which has been developed over a long, productive career as a scientist applying knowledge to assist with resource management and ecosystem restoration issues. Dr Moore has a very strong record of research achievements and publication of results and has the respect of his numerous colleagues around the country. While he has conducted little work in the CALFED Program problem or solution area, he showed a remarkable ability to discuss Program issues in the broader context and his proven capability working in very similar complex ecological, management, and agency environments far exceeded those of other candidates.

Scientific leadership: Dr. Moore has led multiple research programs during his career, including several high profile river and watershed rehabilitation projects. He has shown considerable leadership skill and an ability to guide complex scientific projects. His colleagues describe him as someone who identifies issues, develops solutions, and follows through on implementation.

Organizational skills: reference letters submitted in support of Dr. Moore's candidacy commented on the fact that he is highly organized and understands how to build and structure institutions. During his time at University of Montana helped design and fund a

major river and watershed research center and organized several large EPA and NSF-funded programs.

Interpersonal skills: the Nomination Committee confirmed what was widely reported in the letters of reference. Dr. Moore has exceptional strengths in working with diverse groups of people. He develops constructive working relationships built on trust.

Commitment: Dr. Moore demonstrated a very high level of commitment and enthusiasm for the Lead Scientist position. He is at a point in his career where he can focus on this job. He does not have problems with disengagement with prior commitments or a complex exit strategy from his current position. He is a native Californian and particularly interested in returning to work on the science challenges facing the Authority.

In conclusion, Dr. Moore was the outstanding candidate for the position of Lead Scientist in terms of record, experience, and approach. The Nomination Committee and the Independent Science Board both voted unanimously in support of this recommendation.

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Attachment 5

Curriculum Vita

Johnnie N. Moore

Specialty: Environmental Geochemistry-Sedimentology

Education:

Ph.D. in Geology, 1976, University of California, Los Angeles
M.S. in Geology, 1973, University of California, Los Angeles
B.S. in Geology, 1970, California State University, Northridge

Synopsis:

Presently, I am a Professor of Geology at the University of Montana where I have been on the faculty since 1977. I supervise the Murdock Environmental Geochemistry Laboratory (a central laboratory for inorganic analyses), and direct graduate students working on environmental geochemistry theses/dissertations. I presently teach courses in Environmental Geology and Global Change (Junior), and Environmental Geochemistry (Senior and Graduate) and Environmental Analysis (Graduate). Much of my teaching is field/lab oriented revolving around direct student involvement in solving and examining local/regional/global environmental problems. My research examines the cycling of metals and metalloids in aquatic systems—specifically the transport and fate of metals and metalloids in wetland, river and reservoir systems. I have authored about forty refereed journal publications, many reports, two books, and many abstracts/papers presented at professional meetings. My grants and contracts since 1979 total about 50 for approximately $4 million. My other professional achievements include: Appointment as inorganic geo-chemistry symposia leader of the Geochemistry Division , American Chemical Society (1992-3); Expert consultant for Mountain Water Co., Missoula MT; Expert consultant for USEPA/USDoJ Superfund litigation, and the State of Montana Clark Fork River Damage Assessment (1990-7); Expert witness for American Home Ins. Co. (1993-4), and Oversight of specific USEPA Superfund sites in Montana and USDoE Subsurface Science Program experiments at Hanford; Chair of special sessions for Amer. Geophys. Union and Geol. Soc. Amer. meetings; University of Montana Distinguished Scholar for 1995; Member of the Executive Committee of the Faculty Senate and member of the Academic Standards and Regulations Committee. Member of the Board of Directors of Citizens for Science in Public Participation. Member of the Editorial Board of Advances in Environmental Research, Pergamon Press.

Experience/Employment:

September 1987-present: Professor of Geology, University of Montana, Missoula, Montana 59812.

September 1988 to June 1989: Visiting Research Scientist at the US Geological Survey, Water Resource Division, National Research Program, Menlo Park, California 94025; Professor of Geology (sabbatical leave), University of Montana, Missoula, MT 59812.

September 1980 to September 1987: Associate Professor of Geology, University of Montana, Missoula. MT 59812.

September 1977 to September 1980: Assistant Professor of Geology, University of Montana, Missoula, MT 59812.

September 1976 to June 1977: Lecturer, Fresno State University, Fresno, California.

Research: Metal and metalloid contamination in aquatic systems resulting from agricultural, industrial, mining and smelting operations; Partitioning and transfer of contaminants within water-sediment-biota in streams effected by and mining wastes; Kinetics of arsenic oxidation by Mn oxide; Basin-scale processes of arsenic contamination in sediment and surface water; Mitigation of acid mine drainage metals contamination; Particle-size effects on contaminant transport in sediment; Redox and hydrologic controls on arsenic migration from contaminated reservoir sediment; Redox pumps in contaminated systems; Mobilization of metals and metalloids from contaminated floodplain soils; Bio-geochemical cycling of selenium in wetlands; Modeling alternative methods for remediation of selenium contamination in wetlands; Hyporheic zone contamination in rivers; Role of coatings in fixing and mobilizing metals and metalloids; Biogeochemical pumps in the mobilization of contaminants; Long-term seasonal variations in metal concentrations in sediments of large rivers; Modeling metal contamination in large river systems.

Graduate Teaching Experience: Environmental Geochemistry; Geochemistry; Geochemistry of acid-mine drainage; Geochemistry of arsenic, antimony and selenium; Metals trans-port in aqueous systems; Sediment and contaminant transport; Tectonics and Sedimentation.

Undergraduate Teaching Experience: Environmental Geology; Oceanography; Global Change; Environmental Geochemistry, Introductory Geology; Stratigraphy and Sedimentation; Field Geology; Mineralogy and Petrology.

Professional Organization Service:
Co-Chair of special session, Characterization and Remediation of Environmental Impacts from Metal Mines and Smelter Operations in the Rocky Mountains, Geol. Soc. of Amer., Rocky Mountain Section, 1995 Annual Meeting, Bozeman, MT (1995).
Co-Chair of special session, Contamination of Aquatic Systems from Metal Mining (H22D),

Amer. Geophys. Union, 1994 Fall Annual Meeting, San Francisco, CA (1994).
Member of the Proposal Peer Review Board of the Montana Water Resources Research Center, Bozeman, MT (1994).
Inorganic Geochemistry Symposia Leader for the Geochemical Division , American Chemical Society (1992-3).
Member of the Editorial Advisory Board of Advances in Environmental Research, 1996-present.
Member of the NSF Montana EPSCoR (MONTS) Review Panel, 1997.

Member of the USGS National Water Quality Assessment Program Liaison Committee, 1997.
Member of the Univresity of Montana Science Research Planning Committee, 1999-2000.

Awards:
University of Montana Distinguished Scholar for 1995.
University of Montana Merit Awards in 1983, 1986, 1989, 1991, 1993, 1997, 1999 and 2001.

Board Memberships:
Editorial Board of the journal, Advances in Environmental Research, Pergamon Press, N.Y. (1996-present). http://www.elsevier.com/locate/aer
Member of the Board of Directors, Center for Science in Public Participation (2001-present). http://www.csp2.org/

Other: Expert consultant for Mountain Water Co., Missoula MT; Expert witness for American Home Insurance; Expert consultant for US Department of Justice on recovery of costs of remediation of Milltown Reservoir Superfund Site; Expert consultant and PI for State of Montana, Clark Fork River Basin Damage Assessment Program; Invited Scientist to USFS Project on Mercury Contamination in the Orinoco River Basin, Venezuela; Over-sight of contractor Superfund work on various operable units in the Clark Fork Basin complex of Superfund sites for the State of Montana; Invited scientist for Tell Nimrin archaeological excavation in Jordan Valley, Jordan; Advisor to the Governor's Council on Ground Water Quality; Advisor to Battelle NW Laboratories on subsurface science field site, Hanford, WA; Visiting Scientist at US Geological Survey, Water Resource Division, National Research Program; Visiting Sedimentologist, Deep Sea Drilling Project, Leg 79; Invited Scientist, Univ. MT-BYU archeological expedition to the northern rift valley of Syria; Author of textbook and Lab. Manual on Stratigraphy and Sedimentation. Recreational interests include: Canoeing, biking, hiking, bird-watching, and general exploration.

Selected Publications:

Nagorski, S.A., J. N. Moore, T.E. McKinnon, and D.B. Smith (2003). Scale-dependent variations in stream water geochemistry. Environmental Science and Technology, 37: 859-864.

Nagorski, S.A., T.E. McKinnon, and J.N. Moore (2003). Seasonal and storm-scale variations in heavy metal concentrations of two mining-contaminated streams, Montana, USA. Proceedings of the XII International Conference on Heavy Metals in the Environment. Journal de Physique, 107, 909-912.

Nagorski, S.A., J.N. Moore, and D.B. Smith (2001). Geochemical baseline studies and relations between water quality and streamflow in the Upper Blackfoot River watershed, Montana: Data for July 1997- December, 1998. U.S. Geological Survey Open-File Report 01-0059, 93 pp. http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-01-0059/.

Nagorski, S.A., J. N. Moore, T.E. McKinnon, and D.B. Smith (2003). Geochemical response to variable streamflow conditions in contaminated and uncontaminated streams. Water Resources Research, 39 (2), 1044, doi: 10.1029/2001WR001247.

Moore, J.N., and W.W. Woessner, 2003, Arsenic Contamination in the Water Supply of Milltown, Montana, in Welch, A.H., and Stollenwerk, K.G., eds., Arsenic in Ground Water: Geochemistry and Occurrence: Norwell, Massachusetts, Kluwer Academic Publish-ers, p. 329-350.

Nicholas, D. R., Ramamoorthy, S., Stefan Spring, S., Moore, J. N., and R.F. Rosenzweig, 2003, Biogeochemical transformations of arsenic in circumneutral freshwater sediments: Biodegradation, (in press).

Nagorski, S.A., J.N. Moore, T.E. McKinnon and D.B. Smith, 2003, Geochemical response to variable streamflow conditions in contaminated and uncontaminated streams: Water Resources Research, 39(in press).

Nagorski, S.A., Moore, J.N. and D.B. Smith, 2002, Distribution of metals in water and bed sediment in a mineral-rich watershed, Montana, USA: Mine Water and the Environment, 21:121-136.

White, K.D. and J.N. Moore, 2002, Impacts of Dam Removal on Riverine Ice Regime: ASCE Journal of Cold Regions Engineering, 16(1): 1-50.

Moore, J.N., and W.W. Woessner, 2000, Solute and solid phase relationships in the sur-face hyporheic zone of a metals contaminated stream, Silver Bow Creek, MT. Proceedings of the Ground-Water/Surface Water Interactions Workshop, USEPA, EPA/542/R-00/007, July 2000, p. 151-155.

Castro, J.M. and J.N. Moore, 2000, Pit Lakes: Their characteristics and the potential for their remediation. Environmental Geology, 39 (11): 1254-1260.

Nagorski, S.A., T.E. McKinnon, J.N. Moore and D.B. Smith, 2000, Geochemical characterization of surface water and streambed sediment of the Blackfoot River, Montana, during low flow condiditons, August 16-20, 1998. U.S. Geological Survey Open-File Re-port 00-003, 59 p.

Hochella, M.F., J.N. Moore, U. Golla and A. Putnis, 1999. A TEM study of sample from acid mine drainage systems: Metal-mineral association with implications for transport. Geochimica et Cosmochimica Acta, 63(19-20): 3395-3406.

Wielinga, B, J.K. Lucy, J.N. Moore, O.F. Seastone and J.E. Ganon, 1999, Microbial and geochmical characterization of fluvially deposited sulfide mine tailings. Applied and Environmental Microbiology, 65(4): 1548-1555.

Nagorski, S. and J. N. Moore, 1999. Arsenic mobilization in the hyporheic zone of a contaminated stream. Water Resources Research, 35(11): 3441-3450.

Zhang, Y.Q., W.T. Frankenberger, Jr. and J.N. Moore. 1999. Effect of soil moisture on dimethyselenide transport and transformation to nonvolatile selenium. Environmental Science and Technology, 33(19): 3415-3420.

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Moore, J.N. and E.M. Landrigan, 1999, Mobilization of metal–contaminated sediment by ice–jam floods: Environmental Geology, 37(1-2): 96-101.

Nimick, D.A., Moore, J.N., Dalby, C.E, and M.W. Savka, 1998, The fate of geothermal arsenic in the Madison and Missouri Rivers, Montana and Wyoming: Water Resources Research, 34(11): 3051-3067.

Nagorski, S.A., Shifflett, J.A., Moore, J.N. and D.B. Smith, 1998, Geochemical Baseline Studies and Relations Between Water Quality and Streamflow in the Upper Blackfoot River Watershed, Montana: Progress Report for July 1997-March 1998: U.S. Geological Survey Open-File Report 98-499, 133 p.

McCarty, D.K., Moore, J.N. and A. Marcus, 1998, Mineralogy and trace element association in an acid mine drainage iron oxide precipitate: comparison of selective extractions: Applied Geochemistry, 13: 165-176.

Zhang, Y. and J. N. Moore, 1998, Selenium Accumulation in a Wetland Channel, in, Frankenberger, W. and Engberg, R. (Eds.), Environmental Chemistry of Selenium. Macel Dekker, Inc., N.Y., Chap. 14, p. 243-257.

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Zhang, Y. and J. N. Moore, 1997, Controls on selenium distribution in wetland sediment, Benton Lake, Montana: Water, Air and Soil Pollution,, 97:323-340.

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Helgen, S.O. and J.N. Moore, 1996, Natural background determination and impact quantification in trace metal–contaminated river sediments: Environmental Science and Technology, 30(1): 129-135.

Benner, S. G., Smart, E.W. and J. N. Moore, 1995, Metal behavior during surface–groundwater interaction, Silver Bow Creek, Montana: Environmental Science and Technology, 29(7): 1789–1795.

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1. Woessner, W.W. and J.N. Moore, 2001, Arsenic Release from Milltown Reservoir: American Water Resources Association Annual Rocky Mountain Section Meeting, Session B. Groundwater. October 4, 2001, INVITED.

2. Nagorski, S. A., McKinnon, T. E., Moore, J. N. and D.B. Smith, 2000, Geochemical Variability at Seasonal to Bi-hourly Timescales in Selected Western Montana Rivers: EOS, Trans., Amer. Geophys. Union, Fall Meeting, December 2000.

3. Moore,J.N., 2000, Arsenic speciation and mobility within the hyporheic zone: Abstract No. 50563, Geological Society of America Abstracts with Programs, Vol. 32, No. 7, November 2000. INVITED

4. Luoma, S.N. and J.N. Moore, 2000, Global mine contamination and bioavailability of metals in mine wastes. Plenary Presentation, International Conference on Heavy Metals in the Environment, 6-10 August, 2000, Ann Arbor, Michigan, USA (http://www.sph.umich.edu/eih/heavymetals/ sesssched.htm). INVITED

5. Nagorski, S.A. and Moore, J.N., 1998, Arsenic mobility in the hyporheic zone of an intermontane stream in Montana: EOS, Trans., Amer. Geophys. Union 1998 Spring Meet-ing, Boston, MA.

6. Castro, J.M. and Moore, J.N., 1997, Remediation of water quality in a pit lake by addition of organic nutrients: Geological Society of America, 1997 Annual Meeting, Oct. 20-23, Salt Lake City, UT, Abstracts with Programs, v. 29, No. 6, p. A-322.

7. Mickey, J.W. and Moore, J.N, 1997, The effects of discharge variation on the dissolved concentrations of trace metal and arsenic through Milltown Reservoir, Montana: Geological

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8. Shay, D.T., Woessner, W.W. and Moore, J.M, 1996, An investigation of a floodplain groundwater system impacted by mine tailings, Silver Bow Creek, Montana: Geological Society of America, 1996 Annual Meeting, Oct. 28-31, Denver, CO, Abstracts with Pro-grams, v. 28, No.7, p. A-287.

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12. Benner, S.G., Moore, J.N. and J.K. Lucy, 1994, Metals behavior during surface-groundwater interaction, Silver Bow Creek, Montana: EOS, Trans., Amer. Geophys. Un-ion 1994 Fall Meeting, v. 75, No. 44, p. 259. INVITED

13. Moore, J.N., 1994, Dispersion and temporal variation of metal contamination from metal mining: EOS, Trans., Amer. Geophys. Union 1994 Fall Meeting, v. 75, No. 44, p. 236. INVITED

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15. Helgen, S.O. and J.N. Moore, 1994, Determining natural background and quantifying the impact of mining in contaminated river sediments: EOS, Trans., Amer. Geophys. Union 1994 Fall Meeting, v. 75, No. 44, p. 238.

16. Wielinga, B.W., Seastone, O.F., Gannon, J.E., Lucy, J.K. and J.N. Moore, 1994, Microbial stratification in unsaturated and saturated mine tailings: EOS, Trans., Amer. Geophys. Union 1994 Fall Meeting, v. 75, No. 44, p. 241.

17. Brick, C.M. and J.N. Moore, 1994, Diurnal mobility and partitioning of manganese, iron, zinc and copper in the Clark Fork River, Montana: EOS, Trans., Amer. Geophys. Union 1994 Fall Meeting, v. 75, No. 44, p. 241.

18. Drake, G.J. and J.N. Moore, 1994, Trace metals and total organic carbon in Clark Fork River Sediment, Montana: EOS, Trans., Amer. Geophys. Union 1994 Fall Meeting, v. 75, No. 44, p. 242.

19. Lucy, J.K. and J.N. Moore, 1994, Metals partitioning and geochemical controls in the vadose zone and shallow groundwater zone in a highly contaminated floodplain near Butte, Montana: EOS, Trans., Amer. Geophys. Union 1994 Fall Meeting, v. 75, No. 44, p. 242.

20. Gannon, J.E., Wielinga, B.W., Seastone, O.F., Lucy, J.K. and J.N. Moore, 1994, Microbial processes in the hyporheic zone and adjacent stream banks consequential to mine tailings contamination of shallow ground water: EOS, Trans., Amer. Geophys. Union 1994 Fall Meeting, v. 75, No. 44, p. 260.

21. Moore, J.N., 1993, Fingerprinting sources of metal contamination using elemental ratios: EOS, Trans., Amer. Geophys. Union 1994 Fall Meeting, v. 74, No. 43, p. 266.

22. Brick, C.M. and J.N. Moore, 1993, The geochemistry and microbiology of iron and manganese oxide formation in two different river environments: EOS, Trans., Amer. Geo-phys. Union 1994 Fall Meeting, v. 74, No. 43, p. 266.

23. Brick, C.M., Moore, J.N., Wielinga, B.W., and J.E. Gannon, 1992, Downstream penetration of sulfide oxidation products from runoff events in the Clark Fork River, Montana: Symposium on the Environmental Geochemistry of Sulfide Oxidation: Amer. Chem. Soc., National Meeting, Washington, D.C., August 23-28. INVITED

24. Nimick, D. A. and J.N. Moore, 1992, Stratigraphy and chemistry of oxidized sulfidic floodplain sediments, upper Clark Fork River, Montana: Symposium on the Environ-mental Geochemistry of Sulfide Oxidation: Amer. Chem. Soc., National Meeting, Washington, D.C., August 23-28. INVITED

25. Savka, M. W. and J. N. Moore, 1992, Transport of particulate arsenic in the Madison-Missouri River System, Montana: Environmental Chemistry, Amer, Chem. Soc., Rocky Mountain Section meeting, June. INVITED

26. Moore, J.N., 1991, Metal Cycling in contaminated river-reservoir systems of the northern Rocky Mountains: American Chemical Society Symposium on Environmental Chemistry of Lakes and Reservoirs, Annual Meeting, Atlanta, GA, April 17-18. INVITED

27. Moore, J.N., 1991, Realities of remediation in the Upper Clark Fork River Basin: Sources and scale of metal contamination: Clark Fork Coalition Annual Meeting, Missoula, MT April 12. INVITED

28. Moore, J.N., 1990, Management of hazardous wastes from large-scale metal extraction, Clark Fork Complex, Montana: I. Physical/chemical aspects. Clark Fork Symposium, Montana Academy of Sciences, April 20, 1990, Missoula, MT. INVITED

29. Luoma, S. N. and J. N. Moore, 1990 Indicators of metal bioavailability in a cobble-bottom stream: The Blackfoot River, MT: USEPA International Symposium on Ecological Indicators, November, 1990, Miami, FL.

30. Moore, J.N., 1988, Invited paper–Geochemistry of fish kills in the upper Clark Fork River, MT: Amer. Fisheries Soc. Ann. Meeting, Kalispell, MT, Feb. 19 .

31. Moore, J.N., 1987, Mechanisms of reduction of arsenic in reducing environments: 6th International Conf. on Metals in the Envir., New Orleans, LA.

32. Brook, E.J. and Moore, J.N., 1987, Relationships between particle size and metal concentrations in contaminated bed sediment of the Clark Fork River, MT: Geol. Soc. Amer. Abstr. Prog. 19(5): 263.

33. Brooks, R. and Moore, J.N., 1987, Distribution of metal contamination in the floodplain sediments of the Clark Fork River, MT: Ibid.

34. Moore, J.N., 1987, Invited paper–Transport of trace elements in the Clark Fork River System: Amer. Water Res. Assoc. Conf. on Water Problems on the Clark Fork and Spokane River Systems, June 24, Spokane, WA.

35. Moore, J.N., Johns, C. and Ficklin, W., 1987, The role of sulfides in the partitioning of arsenic and heavy metals in reducing sediments: 4th International Sympos. on the Interaction Between Sediments and Water, Melbourne, Australia.

36. Moore, J.N. and Brook, E., 1987, Relationships between metal content and grain-size distributions in alluvial floodplain deposits: Ibid.

37. Johns, C. and Moore, J.N., 1985, Heavy metals in bottom sediments of Clark Fork River Reservoirs: Clark Fork River Symposium, MT Acad. Sci. INVITED

38. Moore, J.N. and Johns, C., 1984, Occurrence, distribution and fractionation of metals in contaminated sediments originating from mining and smelting operations along the Clark Fork River, MT: EOS, Trans. Amer. Geophysical Union, 65(45): 890. INVITED

39. Moore, J.N., Johns, C. and Woessner, W.W., 1984, Reservoir sediments as a source of contaminated groundwater, Milltown, MT: Geol. Soc. Amer. Abstr. Prog. 16(4): 236.

40. Fritz, W.J., Moore, J.N. and Futch, R.S., 1983, Megaripples in a foreshore ridge and runnel system, Sapelo Is., GA: Geol. Soc. Amer. Abstr. Prog. 15(6): 576.

41. Moore, J.N., 1982, Controls of phosphorous migration by iron and manganese in the surface sediments of Flathead Lake, MT, USA: Geol. Soc. Canada, Winnipeg, Spring meeting.

42. Fritz, W.J. and Moore, J.N., 1981, Sedimentology of Mt. St. Helens mud flows: Geol. Soc. Amer. Abstr. Prog. 13(4): 202.

Books Published:

Fritz, W.J. and Moore, J.N., 1988, Basics of Physical Stratigraphy and Sedimentology, John Wiley & Sons, Inc., N.Y. (and Japanese Translation, 1999).

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Invited Seminars and Public Presentations:

Arsenic Geochemistry and Contamination at Milltown Reservoir, September, 2001, Bonner Mill-town Community Forum invited presentation, Bonner, MT.

Arsenic in Waters of Western Montana, November, 2001, University of Montana, Sigma Xi Society invited lecture, Missoula, MT.

Arsenic geochemistry and transport in rivers of Montana, April, 2000, Central Washington University, Department of Geological Sciences, Ellensburg, WA.

Consideration of Ground Water–Surface Water Interaction for the Remediation of the Rio Guadiamar, June 1999, Workshop-Oversight on the Remediation of Contamination in the Rio Gquadiamar. Held in Sevilla, Spain, Sponsored by the Andulucia Goverment.

Arsenic geochemistry and transport in rivers of Montana. December, 1999, Stanford University, Department of Geological and Environmental Sciences.

The Clark Fork Superfund Complex of Western Montana: An Overview. Lead presentation for the Clark Fork River Remediation Workshop, October, 1999, Lawrence Livermore National Laboratory, Livermore, CA.

Arsenic in surface, ground and hyporheic-zone waters: Some observations from Montana Superfund sites, rivers and reservoirs. May 7, 1999, University of Arizona, Department of Hydrology and Water Resources, Tucson, AZ.

Arsenic in surface, ground and hyporheic-zone waters: Some observations from Montana Superfund sites, rivers and reservoirs. March 22, 1999, Los Alamos National Laboratory, Earth and Environmental Sciences (EES-15), Los Alamos, NM.

Arsenic in surface, ground and hyporheic-zone waters: Some observations from Montana Superfund sites, rivers and reservoirs. February 24, 1999, California Institute of Technology. Environmental Engineering Science Department, Pasadena, CA.

Effects of metal contamination on river systems from large-scale metal extraction-case studies from the Rocky Mountain West. February, 1996, Western Montana College, Dillon, Montana.

Effects of metal contamination on river systems from large-scale metal extraction-case studies from the Rocky Mountain West. October, 1995, Fort Belknap College, Fort Belknap Indian Reservation, Montana.

Reducing Impact of Selenium on Wetland Systems Through Pond Management: Field Experimentation and Modeling at Benton Lake National Wildlife Refuge. April 1995, Department of In-terior National Irrigation Water Quality Program Biannual Meeting, South San Francisco, CA.

Keynote Speaker for Undergraduate Summer Research Institute and Panel Member for the Environmental Sciences Forum . October, 1993, Vassar College, Poughkeepsie, NY.

The Environmental Legacy of Large Scale Mining.. April 1993, The People's University, University of Montana, Missoula, MT.

Effects of Large Scale Mining and Smelting in the Butte and Anaconda area. April, 1993, Wesley Foundation, Missoula, MT.

Processes and pathways of metal contamination in the Clark Fork Superfund Complex, MT. March 1991, Stanford University Geology Department, Palo Alto, CA.

Processes and pathways of metal contamination in the Clark Fork Superfund Complex, MT. March 1991, Stanford University Department of Environmental Engineering, Palo Alto, CA .

Contamination at the Country's largest Superfund Site: The Clark Fork Complex, Montana. May 4, 1990, Lawrence Livermore National Laboratory, Livermore, CA.

Grants and Contracts

(including joint projects with other PIs (J)):

1. Trace Metals in Sediment from Mine-impacted Rivers ($183,146): U.S. Geological Survey Cooperative Agreement (2001-2002).

2. Microbial community diversity, structural and functional responses to multi-component metal contamination of river benthic systems ($140,000): Regrant of SEER#1: US Environmental Protection Agency, EPSCoR Program (2001-2003) (J).

3. Life in the Pit: Unique Biogeochemical Cycling in Highly Stratified, Metal-Rich, Aquatic Environments ($99,981): National Science Foundation (2001-2002) (J).

4. Missoula Air Quality Research Assistantship ($44,118): Stone Container Corporation (2001-2001) (J).

5. Wildfire History from Charcoal Variation in the Holocene Sediments of Flathead Lake, Montana ($1500): NSF-EPSCoR Program, student intern support (2002).

6. Temporal Variability in Concentrations of Trace Metals in Sediments of the Clark Fork River, Montana, USGS Cooperative Agreement ($45,000): US Department of Interior (1998-2001).

7. Evaluation of Impact of Metals from Sewage Effluent on Metal Concentrations in Soils ($48,800): USNPS, Cooperative Agreement (2000) (J).

8. Determination of Heavy Metal Contamination in Surface Soils ($16,000): U.S. Bureau of Land Management (2000-2001).

9. Impacts of Hazardous Substances Research, USNPS, Cooperative Agreement ($266,680): US National Park Service (2000).

10. Determining the role of microbial community structure and function in establishing the health of multi-component metal contaminated river benthic systems ($140,000): US Environmental Protection Agency, EPSCoR Program (1999-2001) (J).

11. Impacts of Hazardous Substances Research, USNPS, Cooperative Agreement ($31,740). US National Park Service (1999).

12. Establishment of the upper Clark Fork River Basin long-term characterization project: Platform for Discovery-based undergraduate teaching and research ($84,942): National Science Foundation, Grant No. DUE-9950637 (1999-2000) (J).

13. Construction of a field research center and remodeling of laboratory space ($804,000): University of Montana Renovation of Research Space Construction Funds (Internal competitive funds) (1998), with Division of Biological Sciences (J).

14. Development of a Central Environmental Biogeochemical Analytical Laboratory ($710,000): M.J. Murdock, Charitable Trust (1996-1998) (J).

15. Feasibility study of using bioremediation to cleanup contaminated bottom sediment in Stewart Lake Waterfowl Management Area, Utah ($24,663): U. S. Bureau of Reclamation (1996).

16. Assessment of aquatic resources in the Blackfoot River Basin, west-central Montana: Bed sediment reconnaissance ($25,750): Montana Department of Fish, Wildlife and Parks (1995-6).

17. Continuation of Temporal Variability in Concentrations of Trace Metals in Sediments of the Clark Fork River, USGS Cooperative agreement ($15,000): US Department of Interior (1995-6).

18. Continuation of Physical and geochemical modeling of waste migration from mining contaminated floodplains, Phase I, Conceptual Modeling ($30,000): U. S. Bureau of Mines Energy and Environmental Research Center (1995-7) (J).

19. Continuation of Physical and geochemical modeling of waste migration from mining contaminated floodplains, Phase I, Conceptual Modeling ($90,518): U. S. Bureau of Mines Energy and Environmental Research Center (1994-5) (J).

20. Physical and geochemical modeling of waste migration from mining contaminated floodplains, Phase II, Conceptual Modeling ($137,274): U. S. Bureau of Mines Energy and Environmental Research Center (1992-94) (J).

21. Reducing Impact of Selenium on Wetland Systems through Pond Management: Experimentation and Modeling at Benton Lake National Wildlife Refuge ($40,000): US Department of Interior National Irrigation Water Quality Program (1994-5).

22. Temporal Variability in Concentrations of Trace Metals in Sediments of the Clark Fork River, USGS Cooperative agreement ($67,752): US Department of Interior (1993-5).

23. Continuation of Soils and sediment sampling and mapping for the Clark Fork River Ba-sin Damage Assessment ($6,200): Montana Department of Health and Environmental Sciences (1993).

24. DOE/EPSCoR Graduate Traineeship ($23,563): U. S. Department of Energy (1992-4).

25. Soils and sediment sampling and mapping for the Clark Fork River Basin Damage Assessment ($135,000): Montana Department of Health and Environmental Sciences (1992-3).

26. Selenium and salinity at Benton Lake National Wildlife Refuge ($62,500): US Fish and Wildlife Service (1992-4).

27. Consultation for Clark Fork Basin Resource Damage Assessment Presettlemeent Meeting ($4,539): MDHES (1993).

28. Processes affecting arsenic transport in the Madison and Missouri Rivers ($19,251): Montana Water Resources Center, Bozeman, MT (1991-2).

29. Determination of sources of non-point metal contamination in the upper Blackfoot River, MT ($10,000): Montana Department of Health and Environmental Sciences, Water Quality Bureau.(1990-1)

30. Study of arsenic contamination on the Missouri River, Montana ($7,500): Montana Department of Natural Resources and Conservation.(1990-1)

31. Upgrading the Geology Department Inductively Coupled Argon Plasma Spectrometer ($15,500): University of Montana Internal Grant (1990-1).

32. University of Montana Faculty Research Grant ($2,200): U of M (1991-2).

33. Floodplain tailings deposits as a source of aquatic metals, Clark Fork River, Montana ($18,050): Mont. Water Research Center.(1988-9)

34. Superfund Site Technical Oversight ($9,183), with W. Woessner: MDHES (1989).

35. Superfund Site Technical Oversight ($18,048), with W. Woessner: MDHES (1990).

36. Superfund Site Technical Oversight ($8,057), with W. Woessner: MDHES (1990-2).

37. Superfund Site Technical Oversight ($4,991), with W. Woessner: MDHES (1989).

38. Superfund Site Technical Oversight ($10,140), with W. Woessner: MDHES (1989).

39. Superfund Site Technical Oversight ($9,183), with W. Woessner: MDHES (1989).

40. Superfund Site Technical Oversight ($7,492), with W. Woessner: MDHES.(1989-90).

41. Superfund Site Technical Oversight ($14,714), with W. Woessner: MDHES.(1987-8).

42. USGS Cooperative Agreement ($15,482): US Department of Interior (1988).

43. Pathways of metal contaminant transport in the Clark Fork River ($28,000): MT Water Research Center (1987-8).

44. Upgrading of an ICAPES ($39,500): National Science Foundation, equipment grant (1986-7).

45. University of Montana Faculty Research Grant ($6,450): U of Montana (1986-7).

46. Role of sulfides in partitioning of arsenic in reducing sediments ($9,500), with C. Johns: National Science Foundation-MONTS Program (1985-6).

47. Determination of possible sources of heavy-metal contamination from reservoir sediment along the Clark Fork River ($27,000), with C. Johns MT: Office Water Res. Tech. (1984-5)

48. Arsenic source and ground-water supply study, Milltown, MT($377,000), with W. Woessner: USEPA Superfund (1983-4)

49. Origin, distribution and economic potential of the Cu-Ag-bearing carbonate units of the eastern Belt Basin, MT ($90,000) with I. Lange.: National Science Foundation-MONTS Program (1980-2)

50. University of Montana Equipment Grant ($3,000): U of M (1982)

51. Nutrient subsidy in Alpine Lake Ecosystems by volcanic ash import ($70,000), with J. Stanford: Office of Water. Res. Tech. (1980-1).

52. Sediment geochemistry of Flathead Lake, MT ($86,000): USEPA, (1980-2).

53. University of Montana Faculty Research Grant ($1,100): U of M, (1981-82)

54. Evaluation of uranium mineralization potential in the Bozeman Quadrangle, MT ($196,185) with I. Lange, et al.: DOE contract through BENDIX, (1978-79)

Agenda Item : 8-3A
Meeting Dates: April 7 and 8, 2004

CALIFORNIA BAY-DELTA AUTHORITY
RESOLUTION 04-04-07

APPOINTING DR. JOHNNIE N. MOORE AS LEAD SCIENTIST FOR THE CALFED BAY-DELTA PROGRAM

WHEREAS, The CALFED Programmatic Record of Decision calls for a Lead Scientist to develop, direct, and implement the programmatic goals of the CALFED Science Program and develop priorities with CALFED program managers and implementing agencies pursuant to these goals; and

WHEREAS, the California Bay-Delta Authority Act expressly requires the Authority, with the advice of the Director, to appoint a Lead Scientist, who shall report to the Authority; and

WHEREAS, after a rigorous recruitment and selection process, the Lead Scientist Nomination Committee of the Independent Science Board, the full Independent Science Board and Director Patrick Wright unanimously recommend Dr. Johnnie N. Moore for the position of Lead Scientist based on his outstanding scientific stature, leadership, organizational skills, interpersonal skills, and his commitment to the role of Lead Scientist;

NOW, THEREFORE, BE IT RESOLVED that the California Bay-Delta Authority appoints Dr. Johnnie N. Moore as the Lead Scientist for the CALFED Bay-Delta Program.

CERTIFICATION

The undersigned Assistant to the California Bay-Delta Authority does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the Authority held on April 7 and 8, 2004.

Dated: _____

_____

Heidi Rooks
Assistant to the California Bay-Delta Authority